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AN EXPERIMENTAL COMPARISON OF TWO METHODS
IN THE TREATMENT OF STUTTERING

by

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A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled An Experimental Comparison of Two Methods in the Treatment of Stuttering, submitted by Yvonne June Elaine Ferguson in partial fulfilment of the requirements for the degree of Master of Education.

ABSTRACT

The purpose of this experiment was to assess the value of two treatments for stutterers. One treatment was designed to orient the stutterer toward attending to physical objects outside of himself. The other treatment attempted to orient the stutterer toward developing and maintaining breathing control for proper speech production. Thirty subjects taken from the Edmonton Public School System were randomly assigned to various groups; a control group, a perceptual group, and a physiological group. Fifty-four speech samples were tape-recorded for pretest and post-test evaluation by three judges who were uninformed as to the category of the samples. Evaluations were made on three dependent variables using a common five-point rating scale. The aspects of stuttering measured were willingness to communicate, frequency of blocks, and ability to cope with blocks. A one-way analysis of variance yielded no significant differences between groups. However, a directionality was indicated in the data which suggested some degree of improvement by the perceptual group toward normal speech. Suggestions and refinements for further research were discussed.

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CHAPTER I

THE PROBLEM

Through the years there have been many kinds of therapy, none of which have been entirely satisfactory, in the treatment of stutterers.

The stutterer embarks on a school program only to find that he cannot cope with the problem of communication. Classroom time and teacher effort are wasted. The stutterer becomes discouraged and an adjustment problem results.

The therapist who treats the condition of stuttering has found certain factors to be important in therapy. These factors have not been isolated or weighted in accordance with their importance. As a result, much time is wasted in treatment because of the search for the right treatment in the case of each individual stutterer.

The purpose of this study was to find the best of two different methods of treatment in an attempt to separate two important factors in therapy, perceptual and physiological. The perceptual approach was a structured type of therapy that involved the attending to and processing of outside stimuli. The physiological approach was dependent on the conditioning and training of the physical organs that assist in the production of speech. This also involved phrasing and articulation.

The variables used to discriminate and judge the speech of the stutterer were the stutterer's willingness to communicate, the degree and frequency of blocks, and how well he coped with blocks. The term 'block' used here denotes audible speech hesitations. The measurement of these three variables was performed by judges, rating pre-tests and post-tests of the subjects, through the use of taped interviews. In order to investigate differences, a five-point evaluative rating scale was used.

A basic assumption adopted in the theoretical orientation of this paper, was that communication is a learned phenomenon in relationship to maturational growth of the child. Schachtel's (1959) views on allocentric and autocentric behavior, which involve the processing and attending to of stimuli, were an important part in the theoretical framework of the perceptual group. Schachtel (1959) states that "autocentric perception manifests itself namely as the consequences of embeddedness in a closed world, which leads to the experience of any new stimulus or any change as something disturbing and to be avoided." (p. 176). If we interpret the stutterer as an autocentric individual, would it not be possible to retrain the stutterer in his approach and understanding, to a fuller allocentric view of other people and his environment? The object of the allocentric mode of perception is to direct the individual's attention, not within himself in terms of reflexive reaction, but rather to train and

orient the individual to attend to what is the object 'out there'. To familiarize the child to this type of perception, we direct his attention outside of his own unique, inefficient, reactive set, toward stimuli 'out there'. In other words, we resort to a technique which develops the child's attention processes, not to himself but to that which is outside of himself. For example, in instructing the child, the question is used, "What is that object?" The stutterer is instructed to use his senses, to look at the object, and to manipulate it. For the child, we use the term 'what' to encourage objective investigation. The processes of this investigation we label the "action".

CHAPTER II

RELATED LITERATURE

A review of recent studies revealed the need for further research to be carried out in the therapy of the stutterer. Many of the studies reviewed were concerned with the causes and treatment of stuttering. The general conclusion being that the problem was a complex one, and although many forms of therapy have been attempted, none have proven consistently successful.

Although the terminology differs in the printed material of the therapists, Bryngelson (1935), Johnson (1959), Van Riper (1960), Sheehan (1953), and Bloodstein (1959), there does seem to be some vague general agreement in regard to the concept of fear as an important variable, either as cause or effect of the stuttering.

Johnson's outlook on therapy was markedly affected by his growing conviction that there was little physical or organic basis for stuttering and by his development in the late 1930's of a 'diagnosogenic' theory of its origin. Like Bryngelson, he believed that it was necessary to reduce the fear of stuttering as much as possible, and that among the stutterer's chief objectives in therapy was to learn to handle speech situations adequately as a stutterer without apologizing for his blocks or allowing himself to be handicapped by his speech difficulty. For Johnson, fear was at the heart of the problem. (Bloodstein, 1959). (p.73).

Sheehan (1953) suggested that stuttering may be viewed as an approach-avoidance conflict. The stutterer wants to express himself, but because of fear, he holds back.

"To Bryngelson, an 'objective attitude' on the part of the stutterer meant the ability to discuss his stuttering freely and casually with others. It meant the willingness to enter difficult speech situations, and the refusal to make use of word substitutions or other tricks for avoiding stuttering. In general, the goal was to bring the problem out into the open and to be willing to stutter. This lent itself to the use of group therapy, in which the stutterer was encouraged to ventilate his feelings about his speech handicap before an audience of other stutterers, and in which he could be helped to gain objectivity by the examples set by others and to challenge and demonstrate his ability to maintain an objective attitude in feared situations." (Bloodstein 1959) (p. 71).

There are frequent variations in terminology with respect to the concept of objectivity. For example, Van Riper's (1939) term 'fluent stuttering', is similar to Bryngelson's (1935) term 'voluntary stuttering'.

"From the beginning, Van Riper regarded the stuttering block as in large part learned behavior. It appeared to him that whether the disorder had a neurological, neurotic, or any other type of origin, it soon tended to become self-perpetuating, most of the abnormality consisting of anticipatory reactions for avoiding stuttering and reactions of frustration in response to the experience of becoming blocked." (Bloodstein 1959) p. 76).

The goal in short, was not to speak without stuttering, but to stutter 'fluently'. This is similar to what Bryngelson had termed 'voluntary stuttering'. Sheehan (1953) used the term 'approach-avoidance conflict', to express the idea that the stutterer should accept his own speech as possibly involving some stuttering and some fluency, to reduce fear avoidance in the

utterance of words.

Recent research indicates the possibility of other variables such as guilt, shame, tolerance, the use of tranquilizers, socio-cultural factors, and even Skinnerian conditioning principles in the treatment of stutterers.

Sheehan, Cortese, and Hadly (1962) examined the prevalence of guilt, shame, tension and rejection traces using a projective measure with forty-eight stutterers. Guilt was evident before, during and after the block. Tension was demonstrated during the block.

Another study (Kinstler, 1960) suggests greater covert maternal rejection of young male stutterers than shown for normal speakers. Normal speakers, however, also manifested stuttering symptoms under punishment.

The conclusion of several studies (Burr and Mullendore, 1960) using tranquilizing drugs on stuttering is that positive effects have been noted. However, these do not occur consistently nor reliably since individual constitutional differences exist.

In a further attempt to exploit the effects of drugs, Palasek and Curtis (1960) report no significant changes using placebo drugs.

Stewart (1960) investigated the socio-cultural factors of stuttering in certain North American Indian societies and found that hesitant and repetitious speech did not, in and of itself, constitute or give rise to the problem of stuttering.

Recently, operant conditioning principles of Skinner have been used in the treatment of stuttering. The feasibility of investigating the effects of schedules of reinforcement unwittingly used by parents has been shown to have maladaptive consequences in modifying a child's speech behavior (Shames and Sherrick, 1963).

Although the theorists use different terminology, in general we can say that they agree on the basic characteristics of stuttering. Thus stuttering may be summarized as an unusual number of too noticeably severe repetitions and stoppages in speech. Some speech pathologists feel that these are the only symptoms common to all stutterers.

Van Riper (1963) defines "stuttering as occurring when the flow of speech is interrupted abnormally by repetitions or prolongations of a sound or syllable or posture, or by avoidance and struggle reactions." (p. 312).

Wingate (1964) states a more elaborate definition of stuttering:

The term 'stuttering' means:

1. (a) Disruption in the fluency of verbal expression, which is (b) characterized by involuntary, audible or silent,

repetitions or prolongations in the utterance of short speech elements, namely: sounds, syllables, and words of one syllable. These disruptions (c) usually occur frequently or are marked in character and (d) are not readily controllable.

2. Sometimes the disruptions are (e) accompanied by accessory activities involving the speech apparatus, related or unrelated body structures, or stereotyped speech utterances. These activities give the appearance of being speech-related struggle.
3. Also there are not infrequently (f) indications or report of the presence of an emotional state, ranging from a general condition of "excitement" or "tension" to more specific emotions of a negative nature such as fear, embarrassment, irritation, or the like. (g) The immediate source of stuttering is some incoordination expressed in the peripheral speech mechanism, the ultimate cause is presently unknown and may be complex or compound. (p. 488)

In summary then, the result of investigating a wide field of the literature suggests that although many variables have been considered important, one encounters great difficulty in isolating the most fruitful cluster of significant variables.

Over the years as the child undertakes the processing of stimuli, a particular mode of perception is typically adopted. Should this mode of perception prove ineffective, one of the symptoms may be stuttering. Modes of perception can be learned, and therefore are modifiable. Current thinking suggests that modes of perception are subject to principles of learning, and that they can

be modified so that more adaptive styles are available to the individual.

Since the use of senses is necessarily involved in communication, a fruitful approach to treatment of stuttering might consist of the training and development of these senses specifically in directing the child to objects of attention outside of self, or as Schachtel (1959) would imply, we are attempting to direct them to an allocentric mode of perception. Schachtel claims:

"In the allocentric mode there is objectification; the emphasis is on what the object is like; there is either no relation or a less pronounced or less direct relation between perceived sensory qualities and pleasure-unpleasure feelings - that is, such feelings are usually absent or less pronounced or of a different quality; the perceiver usually approaches or turns to the object actively and in doing so either opens himself toward it receptively or, figuratively or literally, takes hold of it, tries to grasp it." (p. 83)
 "the allocentric attitude is a relative rather than an absolute concept, a matter of emphasis rather than of the exclusion of all and any autocentricity." (p. 227).

Allocentric behavior can be developed through the training of the child's senses. To teach the child to see, hear, touch, and to be open to the object, he must explore the different attributes of the object. Schachtel (1959) explains his use of the word "object" as follows: "the word 'object' for want of a better one, will be used to designate anything, natural or man-made, any plant, animal, or human being which can become the object of human perception, especially when it is perceived as

having an existence of its own, independent of the perceiver and his needs....." (p.83).

In a survey of the literature that places the emphasis on the physiological aspect of stuttering one will find (Heltman, 1946) p. 283 saying that "there are two symptoms of stuttering which distinguish it from all other speaking irregularities involving the lack of fluency. These are: (1) anxiety lest the speaker will hesitate and repeat, (2) spasms of speech organs, particularly breathing muscles." "The stutterer presents a picture of nervousness and tension not only of facial and speech muscles, but of breathing and perhaps even the entire body." (Bender, 1935) p.16.

According to writers who adopt the physiological approach, good speech depends on the condition of the physical organs that assist in the production of voice sound.

The diaphragmatic method of breathing, or sometimes referred to as the central method of breathing, is the correct approach for efficient voice production (Anderson, 1942). It is dependent upon getting the air not only to the upper portion but to the base of the lungs, and upon the action of the diaphragm which controls the flow of the outgoing breath. This stream of air then becomes a vibrating column of air after passing through the vocal folds. The resonating and articulating factors in conjunction with the mental processes are coordinated in producing final speech sounds. The advantages of diaphragmatic breathing are as follows:

1. A maximum of movement of air with a minimum of effort.
2. An inhalation that can be accomplished quickly and silently.
3. A sensitive and responsive control over the outgoing breath by the use of the abdominal press.
4. A minimum of interference with the voice-producing mechanisms of the throat.

Speech is an adjunctive function of organs having basically biological functions. Speech, therefore, can be confined within the limitations of these functions. We must, for example, pause and hesitate if only to inhale (re-learning of the use of the pause). Learn control of outgoing air. Hence, the justification of regarding speech as biologically oriented. (Honig, 1961) (p. 105).

The initial step then, is to introduce the individual to the 'raw material', so to speak, for producing speech, namely air. Subsequent steps are aimed toward interpreting for the child, the processing of this raw material into final speech through use of diaphragmatic breathing. This involves directing the individual's attention to the physiological aspects of speech articulation, pronunciation, and enunciation, as determined by diaphragmatic control. The passage of air through the vocal folds incorporates the concept of a column of vibrating air for the individual, which is then formed into audible speech sounds through the use of the resonating chambers and articulators. Exercises involving the use of the lips, tongue, teeth, hard and soft palates, are conducted to train the individual how to optimally utilize the vibrating column of air.

Through this procedure, an attempt is made to achieve muscle relaxation in the upper chest and throat regions. Relaxation is important in order to provide free, unrestricted movement of the air (Hollingsworth, 1939; Froschels, 1960).

Thus, in summary the perceptual and physiological approaches to treatment provide the researcher with promising and different theoretical orientations for the treatment of the stutterer.

CHAPTER III

THE EXPERIMENT

Subjects

Thirty children ranging from ages seven to sixteen years and from grades one to ten were selected from the Edmonton Public School System for this study, ~~out of an original sample of forty-three children classified as stutterers.~~ Part of the selection criteria used by speech therapists employed by the Edmonton Public School System was that the stutterers be in good physical condition and of average learning capacity as determined by the vocabulary scale of the Stanford-Binet. Within the sample used there were twenty-three males and seven females. Two males and one female were later excluded from the sample due to illnesses.

Experimental Procedure

A fifteen minute speech sample by means of a structured interview (Appendix A) was first obtained to provide a pretreatment evaluation of each subject's stuttering.

The pool of subjects then was randomly divided into three groups, a control (Group I), and two experimental groups -- perceptual (Group II) and physiological (Group III).

TABLE I
SEX DISTRIBUTION FOR SUBJECTS AFTER
RANDOM ASSIGNMENT INTO GROUPS

	Groups		
	Control	Perceptual**	Physiological*
Male	5	9	9
Sex			
Female	5	1	1
Totals	10	10	10

*One female was later excluded from this group at the last session.

**Two males were later excluded from this group at the seventh and eighth sessions.

The parents and children were informed (Appendix B) that ten one-hour treatment sessions for ten weeks were to be held with the author. The control group was informed that they were not to receive any treatment for the same period but at the end of this time, they would again be tested for changes in their speech disability.

Treatment session with the two experimental groups were taped to provide weekly records of progress. The following general rules of procedure characterized the treatment sessions:

1. Subjects were made aware of the goals proposed.
2. A non-evaluative atmosphere was established by the author to provide confidence in the child as a speaker. Visible reactions to any evidence of stuttering were avoided. Enthusiasm and encouragement was provided throughout each session.
3. At all times, the author attempted to present an example of precise articulation, enunciation and pronunciation.
4. A child was never interrupted during any verbalization he made.

The treatments differed in that for Group II, the orientation centered around directing their attention to re-examining their common everyday experiences in objective terms by using real people in real situations. The children were trained in the use and development of the senses required for maximal perception. At later stages of this treatment, some children were involved in acting out these situations while others practiced observation and oral description of objects, persons and events.

The physiological orientation was characterized by a re-education in the basic anatomical functions of diaphragmatic breathing in speech. Further step-by-step details outlining each lesson are reported in Appendix C.

As soon as possible after the tenth treatment session, a second speech sample was taken from each child using the same structured interview.

To evaluate both the pre-treatment and post-treatment speech the fifty-four samples obtained were randomly subjected to three different independent judgments. Instructions as follows, were issued before evaluations:

You are about to hear some samples of speech of stutterers. You are asked to make a rating on the severity of stuttering on each sample. There will be three variables involved. The three variables are: One, the stutterers willingness to communicate, two, frequency of blocks, three, the ability to cope with blocks. You will do this on a five-point scale. A rating of number One on willingness to communicate means that the child is performing at an optimum level. A rating of Five means that the child is having a great deal of difficulty in communicating. A rating of Three in the middle of the scale indicates an average degree of communication. The other variable, frequency of blocks, will attempt to judge the severity of stuttering in each sample. A rating of One will indicate little or no blocks. A rating of Five will indicate that there is severe blocking. A rating of Three would indicate an average number of blocks in the stutterers speech. The last variable that you are to judge is the stutterer's ability to cope with blocks. The same five-point scale will be used. One indicating that they cope very well. Three average, and five having great difficulty. Remember that for all three variables, One is good and Five is bad, with the middle point at Three.

Please be sure to rate every sample on the three different variables carefully. All samples are code numbered and the number of each speech will be called out before your sample is presented. Please put your rating in the three different columns provided for every speech sample. Are there any questions or any points which you would like to discuss?

A brief discussion followed whereby clarification was made of aspects of the procedure involved. Instructions were written on a blackboard. Finally, pre-treatment and post-treatment speech samples were assigned code numbers to ensure that the judges were completely unaware of the treatment sequences, thereby controlling for possible bias factors.

ANALYSIS OF DATA

The present study was an attempt to investigate the merits of applying two kinds of treatment to improve the speech of the stutterer. The independent variables then were, first, a perceptually oriented treatment, and second, a physiologically oriented treatment.

The treatment effects of this procedure consisted of an examination of our dependent variables which were willingness to communicate, frequency of blocks, and ability to cope with blocks.

Establishing Inter-Judge Reliability

To determine the degree of scoring agreement among the judges, an Analysis of Variance Estimate of Inter-Judge Reliability test was performed (Winer, 1962, pp. 124-128) on the pre-treatment ratings for the three dependent variables. Results are reported in Table II.

TABLE II

SUMMARY OF RELIABILITY COEFFICIENTS AMONG THE
THREE JUDGES ON THREE DEPENDENT VARIABLES

Variable	r
Willingness to communicate	.85
Frequency of blocks	.74
Coping with blocks	.78

Tables III, IV, V summarize the final calculations for acquiring reliability scores. The Reliability Coefficient is defined by Winer as:

$$1 - \frac{\text{Variance Estimate Within Subjects}}{\text{Variance Estimate Between Subjects}}$$

TABLE III
SUMMARY OF ANALYSIS OF VARIANCE ESTIMATE OF INTER-JUDGE
RELIABILITY ON WILLINGNESS TO COMMUNICATE

Source of Variation	Sum of Squares	Degrees of Freedom	Variance Estimate
Between Subjects	67.33	26	2.58
Within Subjects	22.67	54	.41
Between Judges	2.07	2	
Residual	20.60	52	
Total	90.00	80	

TABLE IV
SUMMARY OF ANALYSIS OF VARIANCE ESTIMATE OF INTER-JUDGE
RELIABILITY ON FREQUENCY OF BLOCKS

Source of Variation	Sum of Squares	Degrees of Freedom	Variance Estimate
Between Subjects	40.03	26	1.53
Within Subjects	22.00	54	.40
Between Judges	1.80	2	
Residual	20.20	52	
Total	62.03	80	

TABLE V

SUMMARY OF ANALYSIS OF VARIANCE ESTIMATE OF INTER-JUDGE
RELIABILITY ON ABILITY TO COPE WITH BLOCKS

Source of Variation	Sum of Squares	Degrees of Freedom	Variance Estimate
Between Subjects	51.29	26	1.97
Within Subjects	23.33	54	.43
Between Judges	1.58	2	
Residual	21.75	52	
Total	74.62	80	

For the analysis of the data, the judges were asked to rate fifty-four pre-coded speech samples. The data used for examining reliability of judges consisted of the twenty-seven pre-treatment speech samples.

Determining Significance of Differences in Outcomes of Treatments

A One-Way Analysis of Variance (Ferguson, 1959, p.237) was performed to test treatment effects. Pre-test ratings were subtracted from post-test ratings to establish a treatment difference score for the three judges. A mean was then taken of each pre-test to post-test difference of the three ratings made on the fifty-four speech samples.

TABLE VI

DATA SHOWING RAW SCORE DIFFERENCES OF THE AVERAGES OF THREE
JUDGES OF PRETEST TO POST-TEST RATINGS FOR GROUP I (CONTROL)*

Subject	Variable 1	Variable 2	Variable 3
1	1.67	-0.33	0.67
2	-0.67	0.33	0.34
3	0.33	-0.34	-0.34
4	-0.67	-0.33	-0.33
5	1.00	1.67	0.67
6	0.34	0.00	1.33
7	-0.67	-0.66	-0.34
8	-2.67	-0.34	-3.00
9	1.00	-1.33	0.66
10	-1.34	-0.66	-0.67

* A plus score indicates no improvement in speech on the
dependent variables measured.

A minus score indicates improvement in speech on the
dependent variables measured.

TABLE VII

DATA SHOWING RAW SCORE DIFFERENCES OF THE AVERAGES OF THREE
JUDGES OF PRETEST TO POST-TEST RATINGS FOR
GROUP II (PERCEPTUAL)*

Subject	Variable 1	Variable 2	Variable 3
1	-0.67	-1.00	-0.67
2	-0.33	-1.00	-1.00
3	-1.67	0.64	0.00
4	-0.33	0.33	1.33
5	-0.67	-1.33	-1.34
6	-1.34	-0.34	-0.33
7	-0.33	-1.67	-1.34
8	-1.33	0.00	-1.33
9	-1.00	-1.33	-1.33

*A plus score indicates no improvement in speech on the dependent variables measured.

A minus score indicates improvement in speech on the dependent variables measured.

TABLE VIII

DATA SHOWING RAW SCORE DIFFERENCES OF THE AVERAGES OF THREE
JUDGES OF PRETEST TO POST-TEST RATINGS FOR
GROUP III (PHYSIOLOGICAL)*

Subject	Variable 1	Variable 2	Variable 3
1	-1.00	-0.67	-1.00
2	1.67	0.33	0.66
3	-0.67	-1.34	-1.67
4	-2.67	-0.34	-1.00
5	0.00	-0.66	-1.34
6	1.00	-0.33	-0.00
7	0.00	1.00	-0.67
8	0.00	0.67	0.67

*A plus score indicates no improvement in speech on the dependent variables measured.

A minus score indicates improvement in speech on the dependent variables measured.

These average scores were used in the analysis of variance.

Negative scores were interpreted as indicating high positive changes toward speech improvement. An arbitrary constant of Three was added to each of these scores in order to eliminate minus signs. Results of the analyses of variances for the three groups on the three dependent variables are shown in Tables IX, X, XI.

TABLE IX

SUMMARY OF ANALYSIS OF VARIANCE FOR THREE GROUPS ON
WILLINGNESS TO COMMUNICATE

Source of Variation	Sum of Squares	Degrees of Freedom	Variance Estimate	F
Between Groups	2.67	2	1.34	1.11
Within Groups	29.06	24	1.21	
Total	31.73	26		

TABLE X

SUMMARY OF ANALYSIS OF VARIANCE FOR THREE GROUPS ON
FREQUENCY OF BLOCKS

Source of Variation	Sum of Squares	Degrees of Freedom	Variance Estimate	F
Between Groups	0.95	2	.48	0.676
Within Groups	17.12	24	.71	
Total	18.07	26		

TABLE XI

SUMMARY OF ANALYSIS OF VARIANCE FOR THREE GROUPS ON
ABILITY TO COPE WITH BLOCKS

Source of Variation	Sum of Squares	Degrees of Freedom	Variance Estimate	F
Between Groups	2.67	2	1.34	1.33
Within Groups	24.12	24	1.01	
Total	26.77	26		

Table IX shows an \underline{F} value of 1.11 with 2 and 24 degrees of freedom. At the .05 level of confidence, there were no significant differences revealed among groups on willingness to communicate. Table X shows an \underline{F} value of 0.68 with 2 and 24 degrees of freedom. Again, there were no significant differences revealed among groups on frequency of blocks. Finally, Table XI also indicates no significant differences among groups on ability to cope with blocks.

Although the analysis of the data reveals no significant differences among groups for treatment effects, there is however, some directionality toward speech improvement suggested in Tables VI, VII, VIII.

CHAPTER V

DISCUSSION AND SUMMARY

The purpose of this experiment was to examine the effects of two kinds of treatment for the stutterer, one, perceptually oriented, the other, physiologically oriented. Judges were asked to make assessment of ~~fifty-four~~ taped speech samples. Half of these were pre-treatment and the other half were post-treatment samples. They were randomly assigned and precoded to control for halo effects. Measurements were made employing a five-point rating scale on three dependent variables, willingness to communicate, frequency of blocks, and ability to cope with blocks.

A test of inter-judge reliability revealed significant agreement among three judges rating the speech samples.

A one-way analysis of variance performed on the data revealed no significant differences among the treatments and control groups. Examination of the data, nevertheless, revealed some directionality of scores, suggesting improvement in speech.

Furthermore, there are some grounds for arguing that had the treatment sessions been continued for a longer period, statistical significance might have been achieved. Providing the children in Group II with continued practice in attending to real people in real everyday situations should be emphasized. Practice for subjects in Group III should be continued as originally outlined. The three dependent variables, willingness to

communicate, frequency of blocks, and ability to cope with blocks still remain the most promising variables in evaluating changes in stuttering.

Judging from the responses of the subjects, each kind of treatment contained the type of content and challenge that offers intrinsic interest and motivational value. This point bears emphasizing since the factor of attending to objects or organs was the cornerstone of each treatment. Absenteeism occurred only as a result of illnesses (three subjects).

It might be interesting to try a combination of the two treatments. In such a procedure the subject would be trained to adapt and maintain diaphragmatic breathing control along with the environmental stimuli as concrete objects of attention.

Further research in this area might be refined through the use of more homogeneous age groupings in sampling. Studies have been conducted using subject samples of extremely wide age ranges (Wingate, 1964). Matching samples into groups might isolate the sex differences and offer further data as to differences in treatment effects for these groups.

By way of summary then, the author has provided further corroborati n of the fact that phenomenon of stuttering presents

the researcher with a challenge involving many elusive variables. This study attempted to investigate the effectiveness of developing two kinds of treatment which trained the child in redirecting and maintaining his attention to specific stimuli. Analysis of the data revealed a directionality of evaluative scores suggesting some degree of improvement toward normal speech. Several advantages were discussed indicating the built-in features of the treatments, and suggestions for further research were offered.

B I B L I O G R A P H Y

BIBLIOGRAPHY

- Anderson, A. Training the speaking voice. Oxford University Press, New York, 1942
- Bender, J.F., What the Physical Education Instructor can do for the Stuttering Student. Journal of Health and Physical Education, No. 6., 1935, p.16.
- Bloodstein, O., A handbook on stuttering for professional workers. National Society for Crippled Children and adults, Inc. 1959a., p.73, 71, 76.
- _____, p.70
- Bloodstein, O. "The Development of Stuttering in Developmental Phases". JSHD 25, pp. 366-376, Nov. 1960.
- Burr, Helen, and Mullendore, J.M., "Recent Investigations on Tranquilizers and Stuttering." JSHD 25; pp. 33-37; Feb, 1960.
- Bryngelson, B., "A Method of Stuttering." J. abnorm. soc. Psychol., 30, 1935, pp. 194-198
- Emerick, L.L., "Extentional Definition and Attitude Toward Stuttering." Journal of Speech and Hearing Research 3: pp. 181-86; June, 1960.
- Ferguson, George A., Statistical analysis in psychology and education. McGraw-Hill Book Company, New York, 1959.
- Froschels, E., "Symptomatology in Stuttering an Aid to the Case History." Akt. Probl. Phoniast. 1: pp. 179-83, 1960.
- Heltman, H.J. Remedial training for speech deviates in the Elementary School. Elementary School Journal No. 46, 1946, p. 283-87. Copyright Univ. of Chicago.
- Hollingsworth, H.L., "Chewing as a Technique of Relaxation," Science, 90, (1939, pp. 385-387).
- Honig, P., "The Stutterer Acts it Out", JSHD 12, 1947; pp. 105-107.
- Johnson, W., The onset of stuttering. Minneapolis Univ. Minnesota Press, 1959.

- Kinstler, D.B., "Covert and Overt Maternal Rejection in Stuttering". JSHD 26: pp. 145-55; May, 1961.
- Koffka, K., Principles of Gestalt Psychology. Harcourt Brace: New York, 1935, p. 358.
- Palasek, J.R. and Curtis, W.S., "Sugar Placebo and Stuttering." Journal of Speech and Hearing Research 3: pp. 223-26; Sept, 1960.
- Schachtel, E.G. Metamorphosis, Basic Books Inc., Publishers, New York, 1959; p. 227-83.
- Sheehan, J.G., "Theory and treatment of stuttering as an approach avoidance conflict". J. Psychol., 36. 1953. pp. 27-49.
- Sheehan, J.G., Cortese, P.A., and Hadley, R.G., "Guilt, Shame and Tension in Graphic Projections of Stuttering." JSHD 27; pp. 129-39, May, 1962.
- Skinner, B. in Shames, G.H.; and Sherrick, Jr., C.E., "A" discussion of non-fluency and stuttering as operant behavior". JSHD 28, number 1, 1963, p.3.
- Stewart, L., "The Problem of Stuttering in Certain North American Indian Societies". JSHD Monograph Supplement No. 6. Washington, D.C., American Speech and Hearing Association, 1960, p. 87.
- Van Riper, C., and Milisen, R.L.; "A study of the predicted duration of the stutterer's blocks as related to their actual duration". JSHD 4, 1939, pp. 339-346
- Van Riper, C., Speech correction principles and methods. Englewood Cliffs, N.J., Prentice-Hall, Inc. 1963, p.311.
- Wendahl, R.; and Cole, Jane, "Identification of stuttering during relatively fluent speech". Journal of Speech and Hearing Research, 4, 1961. pp. 281-286.
- Winer, B. Statistical principles in experimental design. New York, McGraw-Hill, 1962.
- Wingate, M.E., Recovery from Stuttering, JSHD 29, Aug, 64. p. 312.
- Wingate, M.E., "A Standard Definition of Stuttering." JSHD 29, pp. 488, 1964.

A P P E N D I C E S

A P P E N D I X A

February 26, 1965

Dear

Following the Edmonton Public School Board letter we are choosing your child as one to have the opportunity to receive treatment for a speech handicap in cooperation with a research enterprise being undertaken at the University of Alberta. Your child will be under close supervision of highly competent clinical people. If you accept this opportunity for your child it will be necessary for _____ to maintain a weekly appointment on either Wednesday or Tuesday at 4:30 commencing March 9 or 10 for a ten week period. This will be preceded by an interview with your child on Friday, March 5 at _____ a.m., to determine the appropriateness of the program to your child's needs. The University Clinic is located on the 7th floor of the Education Building on 87th Avenue, just West of 112th Street.

Please return the enclosed form at your earliest convenience or you may bring it with you.

Sincerely yours,

W.B. Dockrell, Director,
Education Clinic

WBD/aj

EDMONTON PUBLIC SCHOOL BOARD

Edmonton, Alberta

Pupil Personnel Services
10210 - 117 Street

February 23, 1965

Re: _____

Dear

This letter is to alert you to the fact that the above mentioned pupil in your school may be involved in a research activity concerning a particular type of speech problem.

Mrs. Ferguson, a graduate student at the Faculty of Education, is conducting the study and has asked our office to cooperate by presenting to her names of pupils having this particular type of speech problem. This we have agreed to do and the name of the above mentioned student is amongst those submitted to Mrs. Ferguson.

The activity involved in the research will be done completely out of school time and should not in fact involve school staff at all. Mrs. Ferguson will be approaching parents directly and if the above mentioned child is to become part of the study all details will be worked out between Mrs. Ferguson and the parents.

The school system hopes to derive some benefit from this enterprise since approved therapy procedure will be carried out under competent supervision. Further it is expected that a

report would be received for each pupil taken into therapy.

Your interest and, if required, your cooperation are enlisted.

This research project has been approved by this office as a legitimate and important study.

Sincerely,

K.M. Grierson,
Supervisor of Special
Educational Services

FULL REPORT PLEASE ON STUDENTS SEEN

NAME OF CHILD _____ NAME OF STUDENT _____ ROOM NO. _____

1. (a) Name _____ (b) Address _____
 (c) Birthdate _____ (d) Age _____ (e) School _____
 (f) Grade _____ (g) Teacher's Name _____

Tell me something about your school? (Describe the building)

2. Family

- a) How many children in your family? _____
 b) Names _____
 c) Does your mother work? _____
 d) Tell me something about your mother _____
 e) Where does your father work? _____

3. Who brought you here? _____

Tell me what he/she is like? _____

How did you come here _____

4. Do you find it hard to talk to people? _____

a) On the phone? _____ In class? _____ In a store? _____

b) When is it no trouble? _____

c) At home? _____ Single? _____

d) Talking to a cat or dog? _____

5. Describe this object _____

APPENDIX C

APPENDIX C

OUTLINE OF LESSON PLANS FOR PERCEPTUAL PROCEDURE
(GROUP II)

COURSE CONTENT FOR FIRST WEEK

The emphasis was placed on the sense of sight. The children were arranged in a circle with the therapist and questioned about the view from the window, and furthermore, there was perception of people and significant others stressed. The children had to describe how each other and the therapist looked while describing the view. They were instructed to note how facial expressions varied. This, of course, involved oral participation by the children. Following this, there was a period of concentration during which the child was asked to visualize the person that had brought them to the University. They described the drivers of the various vehicles involved. Further, they were directed toward viewing the features of a visitor who entered, was reprimanded and left. They described the visitor and the reprimand. A discussion followed as to their accuracy. At the conclusion of the lesson, they were asked to observe carefully the different things that they could see on their way home.

SECOND WEEK

The second lesson had the same procedure as lesson one but with the emphasis on the tactile sense. The use of the circle was again made while the children described what they

had seen on the way home last week, as well as describing their favorite pets. Drivers of vehicles were also described. A blindfold was used and the children were instructed to explain objects felt. The following objects were used: Stethoscope; pine cone; cup; candle of bees wax; perfume box; seashell; kilt pin; spool of thread; gourd; hinge; pencil; box matches; plastic aeroplane; hair clip. The children who guessed the objects incorrectly had the opportunity to describe the silk scarf that was used as a blindfold. The children described at random identifying features of a dog - legs, tail, head, eyes. A period of concentration followed with the children getting down on their knees imitating first, the dog; then the features of their specific pets. A planned visitor entered, talked for a moment about an appointment time and left. The children were asked to describe the visitor including facial features and expressions. During the discussion following, the children were asked if the police could find the visitor from the children's description. The children, themselves, made the decision that their descriptions were not good enough. At the conclusion of the lesson, they were informed that next week they would be asked to describe their mothers.

THIRD WEEK

The third lesson again consisted of the same procedure as Lesson One but with the emphasis on the auditory sense. At

the beginning of the lesson, a planned visitor entered and made the statement, "Don't forget to look at my nose." The children on departure of the visitor, were asked to describe the visitor, but no one mentioned the nose. The children were then involved in further oral participation as they described their mothers. They were then asked how many could describe their school teacher so accurately that if necessary she could be located to the police in Disneyland. Each child described their teacher, but none was satisfied with his results. The question followed, "What other things must we do in addition to observing?" The responses came and to listen was included in the responses. The children faced the outside of their circle and were instructed to close their eyes tightly. The following objects were dropped on the floor: bee, pin, macaroni, button, marble, box, acorn, nail, bolt, eraser, bobby pin, safety pin, chalk, brush, key, pen, money, paper, paper clip, pencil, paper rustling, cardboard, dice, rattle. The children concentrated on their auditory sense and guessed as they listened. The fact that they were inaccurate a large proportion of the time led them to conclude that they did not listen hard enough. Children then moved to the center of the room and made another circle facing outward. Some of the previous objects were again dropped, this time intermingling with dimes, nickels, pennies, quarters. The children improved. The children were then asked to look out the window. "What objects do you see out there?" The children then drew on the

blackboard what they had seen, each in their turn quickly erasing, then the other children had to describe what had been on the blackboard. At the conclusion of the lesson, they were asked to look and listen for the next week.

FOURTH WEEK

The same procedure as the other lessons generally. The children described their fathers. Descriptions are improving. Then the children described the sounds that they had heard on their way home when travelling in vehicles with eyes shut. A planned visitor entered, the author left the room, and the children were asked to describe her. A visiting child made a planned entrance and left. The children attempted to describe the visiting child. There was oral participation on the part of every child. Each child was then assigned in turn to stand in the center of the floor and to close his eyes and describe sounds that he heard while concentrating. The author put on sunglasses and walked around giving the children instructions to return to their circle. The glasses were put away. The children were asked to describe the glasses. Only two children out of ten mentioned the colored lenses. A planned visitor entered with three pennies taped to her wrist, her suit button and to one shoe. The child first observing the penny during the course of the conversation was allowed to keep the penny. Discussion between the children and the author followed, with the question arising, "What are we trying to do?" The answer was "If we watch and listen, we are better equipped to

answer the question, 'what is that object out there?'. The children were given a little project to bring a small object to describe it fully.

FIFTH WEEK

The same procedure as the other lessons was used. The children brought objects from home. They consisted of: cuff-link, gun, penny, toy parrot, basket, stuffed ornament, bottle top, and china cat. Each object was described by the child that brought the object. Then the children, in turn, were blindfolded and asked to describe the objects they were feeling. The objects were, of course, mixed up by the other children. A planned visitor entered and displayed anger. The cause of the anger was a planned argument that the children were using the classroom that the visitor wanted. The author left and brought in a planned official. The official claimed that the children and the planned visitor were both entitled to use the classroom. The official displayed pleasant expressions and mannerisms. The planned visitor continued to show anger and left. The children were asked to describe what they had seen. The children were very eager to be permitted to describe the scene that had taken place before them. The visitor was described as being angry, the official was described as being nice and pleasant. Detailed descriptions of both men followed. There was indication given that the descriptive powers of the children were improving and they were attending to stimuli out there. All of the children's objects were then placed in paper bags. Each child was given a

paper bag to look into and to describe with the other children what he had in his bag. The child was allowed to look at the object while describing. The other children had to guess what the object was. Discussion followed as to whether the descriptions were accurate or not and how to answer the question, "What is that object?" The children were then asked what feelings they had when they walked into a room full of people. They admitted to fear in this situation. One of the children was sent out of the room and allowed to walk in while we all said nothing. They all agreed that this was an uncomfortable situation. We discussed the question, "How can we avoid this?" "What can we do?" "What is the secret?" The secret, we decided, was to have an 'object of attention'. The table was then arranged as a stage with a chair used for steps going up to the table. Each child individually stood alone on the table and the other children were asked to make the child their object of attention. The child on the table became nervous even though familiar with the children. The child on the table was then secretly given an 'object of attention' by the author and the following results were obtained. The child felt much better, ceased to be nervous, and was not embarrassed now to be alone on the table. As long as they could maintain their 'object of attention'. The children's take-home project was a secret that every time they have the opportunity, they would find an 'object of attention' and further would make people that they saw their 'objects of attention', including their school teachers.

SIXTH WEEK

The same general procedure as the preceding lessons was employed. Each child described their own school teacher. They were asked what 'objects of attention' they had used when speaking in their classrooms. Different 'objects of attention' were mentioned. Some of them were: the clock, the date on the blackboard, my teacher's glasses, the books on the front desk, the map on the wall. The children were then asked if having these 'objects of attention' had helped. A discussion followed and the children felt that they were all seeing things that they had never seen before. A planned visitor entered, very angry, and demanded that everyone leave, then left himself. The children were asked to describe the situation. There was considerable improvement in their ability to observe and to discriminate stimuli. The conclusion was reached that every day and in every situation if they took an 'object of attention', it helped. Exercises similar to the other lessons with the concluding exercise that each child stood on the table as an 'object of attention' for the class were again conducted. Each child on the table tried to feel comfortable in isolation by having an 'object of attention'. The children who were unable to maintain 'objects of attention' were given further instructions and the class project at the conclusion of the lesson was to observe other people carefully, to have an 'object of attention', and to maintain it.

SEVENTH WEEK

The same general procedure was used as preceding lessons. At the beginning of the lesson each child told a story about their present holiday. They told it in terms of what they did, why they did it, what they saw, and why they were looking. Following the oral participation, on an individual basis, they were asked to name their 'objects of attention' when they were telling their stories. The next class assignment involved concentration and imagination. They were to imagine that they were at the North Pole with the wind blowing at ninety miles per hour and it was forty degrees below zero and they were cold. They were asked to reveal what they saw, what they did, and why they did it. The children concentrated and came up with different reactions. Some blew on their hands; some shivered, and some covered their ears; but all concentrated. Some of the children then observed what the others were doing and described. They were then asked to concentrate on a sad expression, "What do you think of when you become sad? and why do you think of it?" Again, some children observed and reported observations while other children were doing it. The same exercise was repeated for a happy mood. We pretended, following this, that an imaginary child was with us and that his feet were smelling. The children reacted and attempted to describe what one another looked like while involved in using this particular sense. We then pretended that a very pretty girl came into the room

wearing perfume and carrying a bouquet of flowers. The children reacted and then described one another's reactions. Further oral participation included each child's description in detail of their father. When descriptions were not complete, the child was encouraged to continue by asking a question, "If your father was lost, could he be found in Disneyland by this description?" A mime was prepared by the author and two of the children pantomimed a scene displaying conflict. One boy was asking for a ticket to be sold to him; the other refused to do this and they quarrelled. The children were asked to describe what was happening and why. The second mime involved one girl in the class and a boy. They were on a bus and the boy refused to give up his seat to the girl. The children, then again, attempted to guess what was happening and why it was happening. The third mime involved a hostile action where an old man dropped an object and the young man kicked it out of his reach. Same procedure following the mime as before. Two further mimes involved two boys pretending to be in conflict over the same horse; and boys pretending one is the father, the other a son, the conflict revolved around the fact that the son would not put his shoes on.

EIGHTH WEEK

The same general procedure as other lessons. Student expressions were observed and the author attempted to give an indication of happiness, meanness, anger. The children observed and reported their observations. Two children mimed a boxing match and their expressions were observed. The children were

asked, "What do you see in their faces?" Two children struggle, one wants to go one way, the other is resisting. The children were asked, "What do you see, why do you see it, what do you see in their faces?" Two children developed a conflict situation where one insists on putting arms and chin on the table while the other struggles to correct him. The same questions as before were directed toward the students in order to test their observations. Individual children revealed expressions in turn; tasting a lemon, tasting rich creamy chocolate, having a stomach ache, being out in the sun and being hot, and being thirsty. Then the following mimes were undertaken: one child was Santa Claus and the other child was miming what he would like for Christmas. The children were asked the usual questions regarding the observation of the mime. One child is the teacher and one child is the pupil. The pupil is wrong; the teacher is right; the conflict situation is described by those observing. A repeat of questions was put to the children. Two children pretend one is the monkey and one is someone feeding him peanuts. A repeat of description and questions followed. The last mimes included conflict situations between a storekeeper and his various customers. Repeat again, of the descriptions and questions. At the conclusion of the lesson, each child stood on a table which represented a stage; adopted an 'object of attention' and asked riddles of the other children. There was careful description and observation of the individual child by the others.

Their take-home project for the next lesson was to observe somebody at home very carefully and to describe him or her.

NINTH WEEK

The same general procedure was followed as for the preceding lessons. The children participated orally in describing the individual that they had chosen from the week before. Those chosen included parents, teachers, and other siblings in the family. The following mimes were acted out and the usual descriptions and questions on them were carried out. The first mime involved three children acting out a scene of conflict where two were rejected by the third. The second mime involved two children pouring drinks for a patron who becomes intoxicated and a third boy acted as a policeman arrests him. The third mime involved five little boys on a bus, one of whom is the bus driver, one is the old man passenger, and one was a dog, and two were little boys. The conflict arose because the boys wanted to bring the dog on, and the old man and the bus driver objected. The fourth mime involved a wedding with a minister, bride, groom and flower girl. This was a happy occasion and was described fully by the children. The last scene was again placed in a bus. One lad sleeps, the second robs him of his wallet and a third attacks the robber. Some of the questions asked were: Who can describe a bus, how many seats were on that bus, what were you on the bus for, why were you leaving the bus, what does the bus driver look like, and what is the connection between being observant and having good

speech?" Review exercises were done on the use of expressions and on their ability to describe features of people. The project for the next lesson was that the children describe features of people that they observed and conflict situations and happy situations throughout the week. They were to ask themselves the questions, "What is that person doing and why is he doing it?"

TENTH WEEK

The same general procedure was followed as in the preceding lessons. Each child stood on the table that represented the stage and described a person's features and expressions that they had observed during the previous week. The 'object of attention' that they used was questioned in each case, the child had the appropriate answers. Their ability and progress to test reality and everyday real people in real situations had apparently improved in their weekly progress in training their senses. The following mimes with the usual description and questions were acted out. They were involving a larger portion of children while the others observed. All children participated both in the mime and the observation. Four children acted out a scene at a drive-in bank where the customer had left his golf clubs, which were picked up by one of the children. He returned and a stormy conflict arose. The next mime involved a swimming pool, several swimmers, a life guard and one drowning. The mime evolved around a bus-stop, the theft of an old lady's purse, a child who observed and ran for the police, and the guilty party. The last mime involved

children acting out a scene where the mother is reprimanding one of several children who have been involved in a misdemeanour. At the conclusion of the lesson, further discussion was given regarding their development of curiosity to their surroundings and how it was connected to their speech. At the conclusion of each and every one of the ten lessons, each child shook hands and said, "Good-bye" appropriately.

OUTLINE OF LESSON PLANS FOR PHYSIOLOGICAL PROCEDURE
(GROUP III)

COURSE CONTENT FOR FIRST WEEK

The first lesson on the physiological orientation adopted a realistic approach that good speech depends on the condition of the physical organs that assist in the production of voice. In order to speak well, one must stand and sit well. This was the motto developed throughout the lesson. A big circle was made by the children in a 'get acquainted' program. They were asked what their names were and why they were there. They agreed that they were all gathered together in order to learn to speak better. They were asked why posture was important. They experimented in bent-over positions trying to breathe and talk. The conclusion that they drew was that they could speak better when they could breathe better and that they could breathe better when they had correct posture. They were given an exercise to pretend they had been running to school and had to take a deep breath. They faced the mirror and took their deep breaths and in every case, their shoulders went up. This indicated that they were not breathing correctly. The author explained this by drawing a two-foot bird cage on the blackboard and comparing this to the children's chest cage. Most of the children were very familiar with bird cages and so were capable of comprehending the comparison. The ribs became the sides of the cage, the diaphragm became the bottom of the cage, and their

lungs became the balloons that we referred to hanging inside the cage. It was explained and demonstrated that in order for a balloon to expand, the air must get to the bottom of the balloon. To explain this further, the children were asked to pant as they had all seen dogs pant. They all noted movement on their own persons at the base of their chest where the diaphragmatic movement is easily noted. The children concluded that this was the reason why the author said, "In order to speak well, we must stand and breathe well". In each case, the children all had their postures checked on an individual basis and they were instructed to have a firm base, feet well placed, in order that their whole structure would not fall down. Heads were to be up but not taut, backs straight but relaxed, arms relaxed. The author noted that as the children struggled for good posture they became rigid. The rigidity was done away with by asking the children to concentrate on being and imitating rag dolls. They bent their trunks over, dropped their heads down, and let their hands and arms hang. Further exercises involved lying on the floor, deep-breathing with the hands on the diaphragm, they were instructed to take a big breath in and push the air out. Oral participation by the children was begun after they had stood up, stretched, yawned, and were told to think relaxed. The following aspects were discussed in oral participation by children: "What is speech? What is voice? Could the air in this room become voice? Why?" Their project for the forthcoming week was to go to bed at night and relax and pant, practice their deep-breathing, yawn, and during the day to practise good posture.

Their centre of control for good voice was to be the diaphragm. After this lesson and each lesson each child shook hands and said, "Good-bye" appropriately.

SECOND WEEK

The same general procedure was followed in the second lesson as in lesson one. The children went through their posture exercises walking in circles and practicing good posture. The theme in order to speak well, we must stand well", was repeated. Heavy bound books were distributed to each child and they were requested to lie on the floor with the book on their diaphragm. They located their diaphragms by panting and deep-breathing. Oral participation then followed, by the children when we answered the question, "What happens when we speak? What processes are involved?" A story about a little boy who ran out of breath and needed breath to call to his friend who was in danger was told to illustrate all aspects of the processes of speech. Each child individually then stood, one at a time, and demonstrated their ability in good posture and speaking. Exercises were then initiated by being first of all, a rag doll; then by being a Santa Claus, and saying, "Ho, ho, ho!" The yawning exercise was then undertaken leading to "Yah, yah, yah!" to develop an open throat. Elastic bands were given to each child to examine and to blow on to see if they could make them vibrate. This illustrated the principle of air once it had passed through the vocal folds becoming a vibrating column of air. Their project to practice throughout the week was to practice

their exercises on diaphragmatic breathing, to pant, say, "ho, ho" and to center their attention on their breathing.

THIRD WEEK

The same general procedure was followed as in the previous lessons. The children were asked to think and to visualize on the blackboard what happens when air goes into your lungs. They experimented by pressing the diaphragm and saying, "Oh", and they listened to the air going out. The rag doll exercise was repeated. The children were stimulated to laugh, and when they laughed, they noted that there was movement by their diaphragm. This indicated to them that this was a natural function and that the natural and proper use in breathing is not to raise their shoulders, but to use their diaphragmatic muscles. The children were asked how many wished to improve their speaking voices. All of them desired improvement and it was decided that there were certain rules which included walking well and standing well. Control of the outgoing breath was now observed. The children were allowed to take deep breaths, count to five, push out manually and expel the remaining air. They were asked where their diaphragms were and without exception, they knew the diaphragm was at the bottom of their chest cage. The principle of a maximum amount of air with the minimum of effort was explained. They held their diaphragms. They took deep breaths, counted to five, relaxed, expelled the remaining air, and repeated the exercise until they were confident that they themselves had control

over their outgoing air. Each child was given a balloon to blow up. They were asked, "What is that balloon full of, why is that balloon full, and how is that balloon like your lungs?" Oral participation of the children followed giving them the opportunity to use the fictions involved as they spoke about them. The children were very quick to correct one another if they started to speak without good posture. The take-home exercise involved the panting exercise, and the "Ho, ho" Santa Claus exercise to be undertaken at bedtime or at any other time that the child was alone, quiet, and could concentrate. Good posture was to be a daily habit.

FOURTH WEEK

The same general procedure was followed as in the preceding lessons. The children were asked what exercises they had undertaken and why they had undertaken them. A pretend period began. The children were asked to pant like dogs on all fours. They put their tongues out and entered the exercise with great enthusiasm. Following this, the rag doll exercise for relaxation was undertaken. This was followed by yawning. Oral participation involved asking the question "What do we yawn for and why do we yawn?" The children enjoyed giving their response. Instructions were then given to place their hands on their diaphragms, to take a deep breath, to count slowly from one to ten, to press down on their diaphragm, and to expel the balance of air in their lungs. For those children who were too tense to engage in the exercise, they continued the rag doll exercise, dropping their heads,

relaxing their fingers, dropping down and rolling up slowly. When they were ready, they lay on the floor with a book on their diaphragms. They took their deep breath and pushed down on the book to expel the air. They repeated the exercises involving, "Ho, ho", of Santa Claus and the "Oh" of sudden surprise. At the conclusion of the lesson, each child participated on an individual basis in telling a story. Group pressure compelled and demanded good posture. If the child delivering the story was corrected for posture, the other children reacted by correcting their posture. The project for breathing exercises involved the same exercises as before with the addition of control of breath. The children were getting used to the idea of being able to control their speech by controlling their diaphragm.

FIFTH WEEK

The same general procedure was followed as in the previous lessons. A review of the exercises and aspects from the preceding weeks was undertaken. Following the review, we discussed the use of air in producing voice sounds. For example, plosives voiced and unvoiced, were experimented with by the children. A game was introduced whereby two students were chosen as team captains and the teams were chosen by the children. The project was to make use of their air by controlling the diaphragm and to blow out the flame from a candle by saying the voice plosive 'b'. Scores were kept. The same teams again competed on the unvoiced plosive 'p'. The competition was keen

and each child appeared to be making every effort to make use of their air and to produce voiced sounds properly. A relaxation lesson followed and the take-home project was to practise use of their air to produce voiced sounds. The exercise was to be practised during the week.

SIXTH WEEK

The same general procedure was followed as in the previous lessons. Oral participation by the children involved the practise of how they control the air and produce it into voiced speech. Topics were given by the author. The breathing of each child was checked while they were speaking individually. Improvement was indicated in almost every child by their ability to control their breathing and resulting in good speech. The children were asked "What should you do if you become nervous and yet are required to speak?" "Breathe deeply from the diaphragm. Why should you do this? Show me how you do this", "What are you doing and why are you doing it?" The following exercises to conclude the lesson were: control of the breath, involving counting from one to ten; the rag doll exercise, with special reference being made to foot position. Posture was checked on an individual basis in conjunction with breathing and the final exercise directed the child to control his body so that he could control his speech. Take-home project was to review exercises from the class.

SEVENTH WEEK

The same general procedure was followed as in the previous lessons. The same general review of exercises as in

preceding lessons; panting; yawning, relaxing, with perhaps a greater emphasis on the throat. The posture game was played. When the bell rang, they were to freeze in the posture that they were in. A check was made of all frozen postures. Poor postures were corrected by saying what was wrong and why it was wrong. Further review involved the articulation and production of specific voiced sounds, for example, the plosives 'p' and 'b'. The candle game was played with the children competing on an individual basis. There was oral participation on the part of the children and they were asked to use the following sentences to produce good voiced speech. The first one involved the unvoiced plosive 'p' ---- 'Peter Piper picked a peck of pickled peppers.' The second one involved flexibility of the articulators ---- 'She sells sea shells down by the seashore'. as did the third one---- 'A flea and a fly flew into the flue'. An explanation, discussion and exercise of the articulators that are used to change the air into meaningful speech was engaged in. From relaxation and diaphragmatic control and yawning, we developed an open throat and back vowel sounds were practised. The breath-control exercises were now involved in the phrase-counting from one to fifteen. The question was asked, "Why do we have trouble with our speech?" The conclusion from the answers given was that "If we try too hard, we become too tense and our speech cannot follow the open passage." There was oral participation on the part of the children as they attempted to combine what they had learned with the stories that they were telling. Project for

the week at home was to develop and maintain open throat and flexibility in the use of articulators; the lips, the tongue, the teeth, the hard and soft palates.

EIGHTH WEEK

The same general procedure was followed as in the previous lessons. As in all the above lessons, this lesson began with exercises in areas of posture, the centre of breathing, the control of the breath, the relaxation of the body itself to allow for the freedom of an even flow of air. The air at this point then becomes the articulated meaningful sounds that the children produce. The phrasing or grouping of the child's speech into thought groups or ideas was stressed for a major portion of this lesson. There was oral participation on the part of the children as they spoke about recent achievements in their ability to speak well. Children who put their hands in their pockets during their time on the talking spot were required to have pockets pinned for the remainder of their talk. It was suggested that the placement of the hands at the side gives the speaker helpful thumbs. A story was then told to explain and illustrate the importance of the placement of the hands while speaking. Oral participation continued in this lesson as children told stories of their pets and brothers and sisters. A general review of all aspects concluded the lesson with the home project being to maintain their working level on their exercises.

NINTH WEEK

The same general procedure was followed as in the previous lessons. There was, however, greater application in the use of phrases and in the reorganization of the child's thoughts in terms of breath supply. Oral participation on the part of the children evolved around the use of phrasing and the reorganization of their thoughts. When difficulties were encountered, they started back with their control centre of the diaphragm and relaxed breathing exercises. Their attention was directed toward this centre as being their own personal control over their own speech. A discussion involved the precise procedure to follow. If speech is required and if nervous tension persists. A practise stage was set up utilizing a table and chair, and each child in turn proceeded to illustrate the principles that they had been learning in the use of good speech. The take-home project for the next lesson was 'practice makes perfect', review and continue all exercises.

TENTH WEEK

The same general procedure was followed as in the preceding lessons. In this lesson, the practical application in the use of the spoken voice in the terms that we have used previously was stimulated and encouraged. After preliminary review exercises, the class was divided into two teams resulting in competition between the two teams in the areas of posture, deep-breathing, jaw exercises, rag doll relaxation exercises, control of the outgoing breath, phrasing, the use and

articulation of voiced speech. The above were all worked out as games, for example, the good posture was measured by a bell-ringing and a freeze. Pluses and minuses were given to members of the team who had correspondingly good or bad posture. The game idea as a review for the last lesson seemed to stimulate and to encourage the children to do their best and to excel in areas where ten weeks previously they had been ineffective. Throughout the ten-lesson period, children who were inaudible and who had problems with their speech flow were encouraged to repeat by the author pretending that the sounds could not be heard. This appeared to be an appropriate manner in which to encourage audible speech sounds.

A P P E N D I X D

RATING SCORES OF THREE JUDGES ON
WILLINGNESS TO COMMUNICATE

Subject	Judge 1	Judge 2	Judge 3	Totals
<hr/>				
1	3	4	4	11
2	2	2	1	5
3	4	4	3	11
4	2	3	2	7
5	4	3	4	11
6	4	3	4	11
7	2	2	3	7
8	4	3	3	10
9	2	3	3	8
10	4	3	4	11
11	3	2	2	7
12	4	2	2	8
13	5	5	5	15
14	2	2	2	6
15	3	2	1	6
16	2	3	1	6
17	3	2	2	7
18	2	2	2	6
19	4	4	4	12
20	3	3	2	8
21	2	3	3	8
22	4	4	4	12
23	4	2	2	8
24	4	3	4	11
25	5	4	3	12
26	1	2	2	5
27	5	4	5	14
<hr/>				
Totals	87	79	77	243

RATING SCORES OF THREE JUDGES ON
FREQUENCY OF BLOCKS

Subject	Judge 1	Judge 2	Judge 3	Totals
1	5	3	4	12
2	4	3	2	9
3	4	4	5	13
4	3	4	4	11
5	4	4	5	13
6	3	4	4	11
7	5	5	5	15
8	3	3	2	8
9	4	4	4	12
10	4	4	4	12
11	3	4	4	11
12	3	4	4	11
13	4	5	5	14
14	2	4	4	10
15	4	4	4	12
16	3	4	4	11
17	2	3	2	7
18	4	4	4	12
19	3	3	3	9
20	4	5	5	14
21	2	3	2	7
22	4	3	3	10
23	1	3	4	8
24	4	4	5	13
25	4	3	4	11
26	4	4	4	12
27	5	5	4	14
Totals	95	103	104	302

RATING SCORES OF THREE JUDGES ON
ABILITY TO COPE WITH BLOCKS

Subjects	Judge 1	Judge 2	Judge 3	Totals
1	5	3	4	12
2	3	3	2	8
3	5	4	4	13
4	3	4	2	9
5	4	5	5	14
6	4	3	3	10
7	5	4	5	14
8	4	3	3	10
9	3	4	3	10
10	5	4	4	13
11	3	4	4	11
12	3	3	3	9
13	5	5	4	14
14	3	4	4	11
15	4	4	3	11
16	3	4	4	11
17	2	2	2	6
18	3	3	3	9
19	4	3	3	10
20	5	5	4	14
21	2	3	2	7
22	4	5	3	12
23	3	2	3	8
24	5	4	4	13
25	5	4	4	13
26	1	4	3	8
27	5	5	5	15
Totals	101	101	93	295

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